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PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference FPCH03160033		FOR FURTHER ACTION See Form PCT/IPEA/416
International application No. PCT/CN03/00910	International filing date (day/month/year) 28.Oct 2003 (28.10.2003)	Priority date (day/month/year) 28.Oct 2002 (28.10.2002)
International Patent Classification (IPC) or national classification and IPC IPC 7 B01J29/08, 37/00, C01B39/24, C10G47/02		
Applicant CHINA PETROLEUM & CHEMCAL CORPORATION ETAL		
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>		
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input checked="" type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>		

Date of submission of the demand 09.Apr 2004	Date of completion of this report 24.Jan 2005
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Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☒ the international application as originally filed/furnished

☐ the description:

pages _____ as originally filed/furnished

pages * _____ received by this Authority on _____

pages * _____ received by this Authority on _____

☐ the claims:

pages _____ as originally filed/furnished

pages * _____ as amended (together with any statement) under Article 19

pages * _____ received by this Authority on _____

pages * _____ received by this Authority on _____

☐ the drawings:

pages _____ as originally filed/furnished

pages * _____ received by this Authority on _____

pages * _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
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Box No. II Priority

1. ☐ This report has been established as if no priority had been claimed due to the failure to furnish within the prescribed time limit the requested:
- ☐ copy of the earlier application whose priority has been claimed (Rule 66.7(a)).
 - ☐ translation of the earlier application whose priority has been claimed (Rule 66.7(b)).
2. ☒ This report has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rule 64.1). Thus for the purposes of this report, the international filing date indicated above is considered to be the relevant date.
3. Additional observations, if necessary:

This application claims the priority of China Patent Application No. 02146614.9 filed on Oct 28, 2002. But the technical feature "the initial unit cell constant is 2.440-2.465nm, and after being aged under severe conditions of 100% steam at 800°C for 17 hours, the equilibrium unit cell constant remains greater than 2.435nm" of the independent claim 1 is not present in the earlier application, and it can not be reasonably concluded from the application, so the priority of claims 1-33 is invalid.

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement:**

Novelty (N)	Claims 1-33	YES
	Claims	NO
Inventive step (IS)	Claims	YES
	Claims 1-33	NO
Industrial applicability (IA)	Claims 1-33	YES
	Claims	NO

2. Citations and explanations (Rule 70.7)**1) Reference is made to the following documents:**

D1: CN1382631A 04.Dec. 2002

D2: CN1382525A 04.Dec. 2002

D3: CN1325940A 12.Dec. 2001

2) Opinions on claims 1-14

D1 discloses a rare earth Y type zeolite which has an intracrystalline rare earth content of 4-15 wt.% on the basis of rare earth oxide, a unit cell constant of 2.450-2.458 nm, and an equilibrium unit cell constant of 2.432-2.438 nm after being treated under severe conditions of 100% steam at 800°C for 17 hours. And the zeolite can be directly used as an active component to prepare an oil hydrocarbon cracking catalyst (see D1: claims 1-3, page 2, line 23-27, page 3, line 16-21). Thus, to obtain the subject matter of Claim 1 on the basis of D1 is obvious to the person skilled in the art, Claim 1 does not comply with the requirement of inventive step of Art. 33(3) PCT.

The additional technical features of dependent claims 2, 5-10 are also disclosed in D1 (see D1: claims 1-3, page 2, line 23-27, page 3, line 16-21); the difference between claims 3, 4 and D1 is only in that the equilibrium unit cell constants of claims 3 and 4 are slightly greater than that of D1, but this difference is obvious to the skilled person; claims 11-13 further define the Y type zeolite content in the catalyst, but the content ranges are conventional zeolite content ranges in a cracking catalyst; as to claim 14, D3 discloses an hydrocarbon crackig catalyst in which the weight ratio of the MFI structure zeolite to the rare earth containing Y type zeolite is 0.025-1(see D3: claim 5). Consequently, the subject matter of claims 2-14 is not inventive under PCT Article 33(3).

3) Opinions on claims 15-31

D1 and D2 both disclose a method to prepare high silicon Y type zeolite (see D1: page 2, line 28 to page 3, line 15, examples 1-8, or D2: claims 1-7). The method is the same as the step 1) of claim 15, the only difference between them is that claim 15 further comprises step 2), i.e. mixing the rare earth Y type zeolite with a certain amount of binder and clay, slurring, spray drying and shaping to produce catalyst. But such a step is a conventional means to prepare such a catalyst. Claim 15 is not inventive in the sense of Article 33(3) PCT.

The additional technical features of claims 16-21 are also disclosed in both D1 and D2 (see D1: page 2, line 28 to page 3, line 15, examples 1-8, or D2: claims 1-7); claims 22-24 further define the contents of zeolite, binder and clay in the catalyst, but the contents of these components are commonly used in such a catalyst; D3 discloses the additional technical features of claims 25-31(see D3, claims 7-9, 12, 13). Consequently, the subject matter of claims 16-31 lacks an inventive step under PCT Article 33(3).

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**4) Opinions on claims 32, 33**

D1 discloses that the Y type zeolite described therein has a good heavy oil cracking activity and can be directly used as an active component of oil hydrocarbon cracking catalyst (see D1: page 3, line 19-21). Under the teaching of D1, it is easy for the skilled person to think of using the catalyst of claim 1 in residual oil processing. Further, the several residual oils given in claim 33 are very common residual oils that can be used as a feedstock of oil hydrocarbon cracking process. Thus, claims 32, 33 are not inventive in the sense of Article 33(3) PCT.